

40



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,617	01/04/2002	Nina Mishra	10007456 -I	2513

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HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P. O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

AL HASHEMI, SANA A

ART UNIT	PAPER NUMBER
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2161

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/039,617

Applicant(s)

MISHRA ET AL.

Examiner

Sana Al-Hashemi

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. *This action issued in response to applicant's amendment filed 12/10/04.*
2. *Claims 1-10 were not amended .No claims were added or canceled.*
3. *Claim Status: 1-10 are rejected.*

#### *Claim Rejections - 35 USC § 101*

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. The claimed invention is directed to non-statutory subject matter.
6. Claim 1-10 are rejected under 35 U.S.C. 101 because none of the independent claims in conjunction with all dependent claims are statutory.
7. The claimed subject matter is directed to a "mathematical algorithm". As such, the claimed subject matter is not statutory and not eligible for patent protection.

No mathematical equation can be used, as a practical matter, without establishing and substituting values for the variable expressed therein. Substitution of values dictated by the formula has thus been viewed as a form of mathematical step. If the steps of gathering and substituting values were alone sufficient, every mathematical equation, formula, or algorithm having any practical use would be per se subject to patenting as a "process" under 101. Consideration of whether the substitution of specific values is enough to convert the disembodied ideas present in the formula into an embodiment of those ideas, or into an application of the formula, is foreclosed by the current state of law.

For subject matter to be statutory, the claimed process must be limited to a practical application of the abstract idea or mathematical algorithm in the technology arts. See *Alappat*, 33 F. 3d at 1543, 31 USPQ 2d at 1556-57 (quoting *Diamond v. Diehr*, 450 U.S. at 192, 209 USPQ at 10). See also *Alappat* 33 F. 3d at 1569, 31 USPQ2d at 1578-79 (Newman, J., concurring)(“unpatentability of the principle does not defeat patentability of its practical application”) (citing *O’ Reilly v. Mores*, 56 U.S. (15 how.) at 114-19). A claim is limited to a practical application when the method, as claimed, produces concrete, tangible and useful results; i.e., the method recites a step or act of producing something that is concrete, tangible and useful. See *AT&T*, 172 F.3d at 1358, 50USPQ2d at 1452.

For a claimed invention to be statutory, the claimed invention must be within the technological art. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena) that do not apply, involve, use, or advance the technological art fail to promote the “progress of science and the useful arts” (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory subject matter. For a method claim to pass muster, the recited process must somehow apply, involve, use, or advance the technological arts.

As to technological arts recited in the preamble, mere recitation in the preamble (i.e., intended or field of use) or mere implication of employing a machine or article of manufacture to perform some of the recited steps does not confer statutory subject matter to an otherwise abstract idea unless there is positive recitation in the claim as a whole to breathe life and meaning into the preamble. In *Bowman* (*Ex parte Bowman*, 61 USPQ2d 1665, 1671 (BD. Pat. App. & Inter. 2001) (Unpublished), the board affirmed the rejection under U.S.C. 101 as being

Art Unit: 2161

directed to non-statutory subject matter. Although Bowman discloses transforming physical media into a chart and physically plotting a point on said chart, the Board held that the claimed invention is nothing more than an abstract idea, which is not tied to any technological art or environment.

8. In the present case, claims 1, 6, and 9, recite a mathematical algorithm, which can be implemented by the mind of a person or by the use of a pencil and paper. In another words, since the claimed invention, as a whole, is not within the technological arts as explained above, these claims only constitute an idea and does not apply, involve, use, or advance the technological arts, thus, it is deems to be directed to non-statutory subject matter.

#### ***Response to Amendment***

Applicant's arguments filed 12/10/2004 have been fully considered but they are not persuasive.

Applicant argues that the 101 rejection is improper and the claims are statutory, and arguing that claims 1 “provides real world value (i.e. the output centers) this real world value is more that a mere idea or concept”.

Examiner disagrees. For the claims to be statutory they need to be useful, concrete and tangible. In the instance application the “computer implemented method” will not make the claims statutory unless the claims meet the required usefulness, concrete, and tangibility.

Regarding Claims 1, 6, and 9, the body of the claims is not tangible since it does not give the useful and tangible results, since the preamble of the claims discloses a “method for center-based clustering” no where in the body of the claims the clustering based on the center is claimed, it's

Art Unit: 2161

not clear if the “set S” is the same as the “data set” or some thing different, the user of the term “through” did not tie the “set S of n points to identify k centers” to the “sampling of large data sets”, the out putting of the centers does not show and usefulness or tangible and it does not show any relation between the centers and the clustering disclosed in the preamble the only clustering claimed is the sample R clustering which does not show the usefulness or tangibility which make the claim non-statutory. The “real world value” does not make the claim tangible or useful.

Applicant argues, “ if the examiner ... read the back ground of the invention.”

Examiner disagrees. The back ground if the invention help understanding the claimed invention not justifies the status of the claims, since the office examine the claims in light of the specification but not read it into the claims.

Applicant argues “most prior art clustering methods are not designed to work with massively large datasets, especially because most computer implemented clustering methods require multiple passes through the entire datasets which may overwhelm or bog down a computer system if the dataset is too large. As such, it may not be feasible to cluster large datasets, even given the recent developments in large computing power.”

Examiner disagrees. The applicant arguing the preamble of the claims, which has been considered and was not given a much of a patentable weight since the body of the claims did not disclose it.

Applicant argues “The application of clustering to knowledge discovery and data mining require a clustering technique with quality and performance guarantees that apply to large datasets. ... As described fully below, the fast sampling technique of the present invention is

Art Unit: 2161

sublinear, and as such, significantly improves the efficiency of computer resources, reduces time of execution, and ultimately provides for an accurate, fast technique for clustering which is independent of the size of the data set.”

Examiner disagrees. Since the claims did not disclose any step of clustering or data mining. Examiner did not give neither the clustering nor the data mining in the instance application any patentable weight.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 2161

***Points of Contact***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sana Al-Hashemi whose telephone number is (571) 272-4013. The examiner can normally be reached on Monday - Friday from 8:00 AM to 4:30 PM.. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (571) 272-4013. Any response to this office action should be mailed to: The Commissioner of Patents and Trademarks, Washington, D.C. 20231. Or telefax at phone number (703) 746-7416. For formal or draft communications, please label "PROPOSED" or "DRAFT". Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, 6<sup>th</sup> Floor Receptionist, Arlington, Virginia. 22202.

Sana Al-Hashemi  
Patent Examiner  
Technology Center 2100  
February 8, 2005

  
ALFORD KINDRED  
PRIMARY EXAMINER